Flinders
UNIVERSITY

Donnellan-Fernandez, R.E., 2011. Lifecourse measures to evaluate the equity of cost and quality in public health midwifery models. [Poster]. In Women and Birth. 2011: A Midwifery Odyssey, Australian College of Midwives 17th National Conference, p. S37.

Women's and Children's Health Network

Lifecourse measures to evaluate the equity of cost and quality in public health midwifery models

Roslyn Donnellan – Fernandez RM, WCH Foundation Midwifery Fellow, Flinders University of South Australia, Adelaide

"Pregnancy care is recognized as an opportunity to intervene to give children 'the best start in life'. Our data show the current system of universally accessible pregnancy care in Australia is failing to support the most vulnerable women and families," (Sutherland et al, 2011).

Summary

Economic evaluation and modeling to assess effect and cost in maternal and infant health outcomes across the lifecourse is underdeveloped and underutilized in the Australian policy context. This lies in stark contrast to current research, policy and practice development overseas (e.g. Birthplace Project [22]). This poster explores the limitations of focusing on short term approaches to improving maternity services and systems. It proposes measures and indices to model and compare the longitudinal effects of quality and cost in relation to service models and maternal / infant outcomes that link them with important population health outcomes across the lifecourse. It proposes these are potent strategies to address disparities in population health equity, to effectively plan and implement improved maternity services and systems change, and to engage and effectively utilise current and future midwifery workforce as a public health strategy [4].

Background

Addressing health gaps at the start of life is a preventive population health strategy for reducing the burden of chronic disease within a society[9, 5]. Investment in early childhood development strategies has been shown to contribute to the future participation and economic productivity of all members of that society[19]. Current evidence suggests that where the twin paradigms of medical dominance and neoliberalism pervade maternal care provision, health outcomes as well as issues of population equity and access to services will remain suboptimal [3, 10, 26]. Policy, implementation and evaluation that direct systems and services toward primary health care during pregnancy and childbirth will improve health outcomes for individuals and communities across the lifecourse [1, 8]. Improved health outcomes will reduce both cost and resource burdens associated with long term chronic disease management [18].

Longitudinal Methods and Models Linking Cost and Health Outcomes Across the Lifecourse

Methods for the economic evaluation of health care programs and their effects can encompass a range of approaches, including cost effectiveness, cost minimization, cost benefit and cost utility [11, 12]. The net benefit approach supports measurement of cost and quality attributes and benefits in health services [14]. "Maximization of net benefit is an appropriate economic objective where societal value of quality is an important consideration in areas such as health, public services and environmental economics" [13]. Model based economic evaluation "facilitates comparability across evaluations through estimation of long term costs and effects using a generic measure of outcome, the quality adjusted life year (QALY), across a time horizon" [17]. An advantage of using a framework such as decision analytic modeling to estimate long term costs and benefits is that it is open and explicit. This enables critique. A limitation is that the model is dependent on the data and assumptions on which it is built. However, linking the effect and cost of important health outcomes across the lifecourse using methods such as discrete choice experiment [23] and decision analytic modeling could provide a more accurate, comprehensive and meaningful picture to inform Pareto efficient public expenditure principles when implementing and expanding primary health midwifery models. Start of life pregnancy, birth and post birth measures and outcomes, including smoking, mental health status, infant birth weight, mode of birth (i.e.: vaginal, caesarean, including induction of labor rates), infant feeding status (and duration of breastfeeding), immunization uptake and child development milestones are some of the indices which could be modeled across the lifecourse. Incorporating linkage with population health data on incidence of chronic disease management (e.g.: diabetes, asthma, heart disease, obesity, allergies, cancer, and serious mental health morbidity) and including costs of ongoing care offers a comprehensive lifecourse analysis. Numerous studies in Australia and elsewhere have demonstrated improved outcomes, reduced intervention and potential short term savings associated with implementation and expansion of new public health midwifery models [6, 15, 16, 25, 27, 28, 29, 31]. Other Australian studies (e.g.: COSMO; M@NGO; 1+1 = A Healthy Start To Life Project) [20, 30, 2] are examining costs as secondary outcomes. To date however there are no large scale Australian studies that have either modeled or linked longitudinal cost, quality and clinical effectiveness data across the lifecourse for recipients of care in public health midwifery models. The analysis such an undertaking may provide could prove useful to multiple stakeholders. In summary, adopting a net benefit approach to maternity services evaluation across the lifecourse constitutes a robust framework to support policy development, funding calibration, workforce planning and integrated systems reform that is evidence based and better equipped to meet community expectations of safety, quality and choice in relation to childbearing services in Australia.

Context

- Australian women give birth to approximately 300, 000 babies/annum.
- Childbirth is one of the largest consumers of bed stay days and acute care health dollars.
- Whilst review of Australia's maternity services (2009) concluded that Australia is considered one of the safest countries in the world in which to have a baby, this generalization hides a massive disparity in outcomes for women and babies across different population groups/sectors.
- There is significant distortion in Australian Maternity Services and outcomes with approximately 1 in every 3 Australian women giving birth by major abdominal surgery via caesarean section. Evidence confirms correlation between health insurance status and increased levels of unnecessary intervention in healthy childbearing women and their babies in Australia.
- Internationally validated studies confirm that birth by caesarean incurs approximately three times the cost of an uncomplicated vaginal birth, resulting in increased hospital bed stay days and placing women and their infants' at increased risk of significant short and long term morbidity (e.g. hemorrhage, infection, allergies, Type 1 Childhood Onset Diabetes, asthma, increased risk of placental pathology in future childbearing and serious mental health sequela). This morbidity adds to the burden of chronic disease and health system costs.

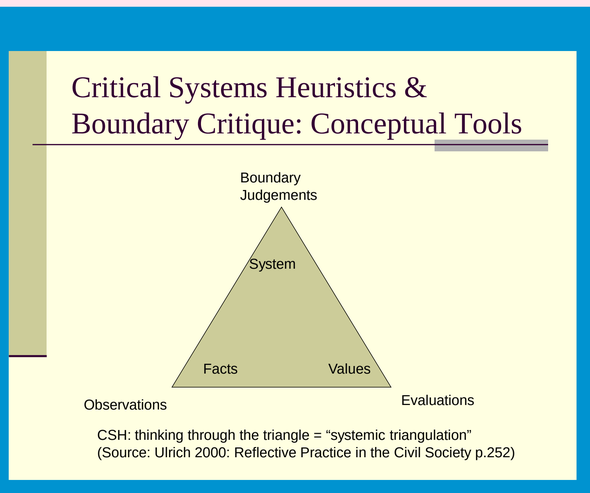
Theoretical Framework

Critical Systems Thinking (CST) encompasses civil liberties, political participation, social and economic rights and industrial democracy, including democratic control of science and technology. The core goal of CST is the exercise of active and competent citizenship in the civil society [32]. Critical Systems Heuristics and Boundary Critique are systematic tools within CST to identify, define and reference a system of concern [32]. When combined with Systemic Intervention methodology [21] and economic evaluation [11] they have utility in Health Services Research by providing a mechanism for robust assessment and critique of Net Benefit in current maternity services supply, cost and population health outcomes. Practicing Systemic Boundary Critique requires completion of 5 Boundary Judgment Tasks in relation to 12 Boundary Categories and 4 Issues of Concern. These are outlined below and have been applied to Australian maternity services [9].

Boundary Judgment Tasks: Identify boundary judgments; Examine practical and ethical implications; Express options and alternatives; Seek mutual stakeholder understanding; Challenge uncritical claims.

Boundary Categories	Boundary Issues
1. Client 2. Purpose 3. Measure of Improvement	Sources of **Motivation**
4. Decision Maker 5. Resources 6. Decision Environment	Sources of **Power**
7. Professional 8. Expertise 9. Guarantee	Sources of **Knowledge**
10. Witness 11. Emancipation 12. World View	Sources of **Legitimation**

The reference System (System of Concern) that determines what observations (Facts), and evaluations (Values) are considered relevant when it comes to assessing the merits or defects of a proposition. (Table of Boundary Categories; Source: W Ulrich 1983:258; 1996:43; 2000:256)



Challenges in Maternity Services

- Policy
- Funding
- Workforce
- Reducing Disparity / Achieving Population Health Equity
- Services and System Configuration and Integration
- Change Management
- Professional Relationships and Roles
- Meeting Community Expectations: Safety, Quality, Choice
- Selecting, Measuring, Costing and Modeling Health Outcomes Across the Lifecourse
- Maximizing Net Benefit in the design, implementation and expansion of sustainable public sector midwifery models

Conclusion

Maximizing effective use of scarce health resources will always be challenging for policy analysts, decision makers and service providers. Over the past decade there has been increasing interest across most western health systems in the provision of evidence on incremental costs and incremental health gains in relation to comparative treatment and services. Additionally, there is increasing pressure to incorporate individual and community preferences for care [23]. Assessing the evidence and modeling it across the lifecourse in relation to public health models of midwifery care holds the potential to realize population health improvement in maternal and infant outcomes in the short term as well as reduce the burden associated with current levels of chronic disease and its cost.

References

1. Australian Health Ministers Advisory Council (2008) Primary Maternity Services in Australia – A Framework for implementation, AHMAC: 1-22.
2. Barclay, L., Carapetis, J. et al., 2008-2010. 1+1 = A Healthy Start To Life Project.
3. Benoit, C., Zadoroznyj, M., Hallgrimsdottir, H., et al. (2010). Medical Dominance and Neoliberalism in Maternal Care Provision: The Evidence from Canada and Australia. Social Science and Medicine 71:475-81.
4. Biro, M.A. (2011). What Has Public Health Got to do With Midwifery? Midwives Role in Securing Better Health Outcomes for Mothers and Babies. Women and Birth 24(1): 17-23.
5. Brinkman, S., McDermott, R., Lynch, J. (2010). Better understanding trajectories of child development: opportunities for data linkage with the Australian Early Development Index (AEDI).Public Health Bulletin SA. Vol 7(3):7-10.
6. Children Youth & Women's Health Service (2006). Midwifery Group Practice: An Evaluation of Clinical Effectiveness, Quality and Sustainability. Women's & Babies Division, WCH. Adelaide. Government of South Australia: 1-79.
7. Commonwealth of Australia, 2009, Improving Maternity Services in Australia: The Report of the Maternity Services Review, Commonwealth of Australia, Canberra: 1-68. Online ISBN: 1-74186-834-3
8. Commonwealth of Australia. (2011). National Maternity Services Plan. Canberra: 1-127.
9. Donnellan – Fernandez, R., Newman, L., Reiger, K., Tracy, S. (2008). Maternity Funding and Workforce Reform: Strategies for Better Design, Better Value, Better Health and Equity. Case-mix Evolution: Extending the Boundaries National Conference. 16-19 November 2008, Adelaide, Australia, DOHA.
10. Donnellan - Fernandez, R. (2011). Having a Baby in Australia: Women's Business, Risky Business, or Big Business? Outskirts: Feminisms Along the Edge 24 online http://www.chloe.uwa.edu.au/outskirts/archive/volume24/fernandez
11. Drummond, M., Stoddart, G.L., Torrance, G.W., O'Brien, M. (1997). Methods for the economic evaluation of health care programmes 2nd ed. Oxford. Oxford University Press.
12. Drummond, M. F., M. J. Sculpher, et al. (2005). Methods for the Economic Evaluation of Health Care Programmes, 3rd ed. Oxford. Oxford University Press.
13. Eckermanm, S., Coelli, T. (2008). Including quality attributes in a model of health care efficiency: A net benefit approach. Centre for Efficiency and Productivity Analysis Working Paper Series. No. WP03/2008: 1-35. http://www.uq.edu.au/economics/cepa/docs/WP/WP032008.pdf.
14. Eckermann, S. (2009). Measuring health system efficiency and funding for net benefit maximisation: the health economics of quality of care. Clinical Change Working paper number 4 2009. http://clinicalchange.flinders.edu.au/publications.html
15. Hatem, M., Sandall J. et al., (2008). Midwife-led versus other models of care for childbearing women (Review). The Cochrane Database of Systematic Reviews DOI: 10.1002/14651858.CD004667.pub2
16. Homer, C.S., Matha, D.V., Jordan, L.G., Wills, J., Davis, G.K. (2001). Community based continuity of midwifery care versus standard hospital care: a cost analysis. Australian Health Review; 24(1):85-93.
17. Karnon, J. (2011). The use of decision analytic modelling to estimate long-term costs and benefits; Seminar, Flinders Medical Centre, Adelaide: 7/9/2011.
18. Lynch, J., Smith, G.D. (2005). A lifecourse approach to chronic disease epidemiology. Annual Review Public Health; 26(1):1-35.
19. Lynch, J. (2011). Why are economists interested in early childhood health and development? Healthy Development Adelaide 7'th Annual Oration, University of Adelaide 25/8/2011.
20. McLachlan, H., Forster, D., Davey, M., et al., (2008) COSMOS: Comparing Standard Maternity care with One-to-one midwifery Support: a randomized controlled trial. BMC Pregnancy and Childbirth 2008,8:35.
21. Midgley, G. (2000). Systemic Intervention: Philosophy, Methodology, and Practice. New York: Kluwer Academic/Plenum Publishers.
22. National Perinatal Epidemiology Unit (2011). The Birthplace in England Research Programme. https://www.npeu.ox.ac.uk/birthplace
23. Petrou, S., McIntosh, E. (2011). Commentary: Using Stated Preference Discrete Choice Experiments to Elicit Women's Preferences for Aspects of Maternity Care. Birth 38:1:47-48.
24. Rowley, M., M. Hensley, et al. (1995). Continuity of care by a midwife team versus routine care during pregnancy and birth: a randomised trial. Medical Journal of Australia 163(6): 289-193.
25. Sandall et al.,(2008). Chapter 2 Midwifery continuity of care: what is the evidence? Impact of care on costs, in Homer et al (Eds): 25 – 46.
26. Sutherland. G., Yelland, J., Brown, S. (2011) Social Inequalities in the Organization of Pregnancy Care in a Universally Funded Public Health Care System. Maternal Child Health Journal DOI 10.1007/s10995-011-0752-6
27. Tracy, S., Tracy, M.B. (2003). Costing the cascade: estimating the cost of increased intervention in childbirth using population data. British Journal of Obstetrics & Gynaecology. 110(8):717-724.
28. Tracy, S., Hartz, D. (2005). The Quality Review of Ryde Midwifery Group Practice, September 2004 to October 2005. Final Report. Northern Sydney and Central Coast Health, December 2005.
29. Tracy, S., Sullivan, E., Yueping, A., Black, D., Tracy, M. (2007) Birth Outcomes associated with interventions in labor amongst low risk women: A Population based study. Women & Birth. 20(2):41-48.
30. Tracy, S. (2009). M@NGO: Midwives at New Group practice Options. Australian New Zealand Clinical Trials Registry; ACTRN12609000349246.
31. Turnbull, D., Baghurst, P., et al., (2009). An evaluation of Midwifery Group Practice Part 1: Clinical effectiveness. Women & Birth 22:3-9.
32. Ulrich, W. (2000). Reflective Practice in the Civil Society: The Contribution of Critically Systemic Thinking. Reflective Practice 1(2):247-268.

Acknowledgements:
WCH Foundation; PhD Supervisors: Assoc Professor Sheryl deLacey and Dr Ingrid Belan, Flinders University; Nursing and Midwifery Clinical Practice Development Unit, Women's & Children's Health Network SA.

Government of South Australia
SA Health

Flinders UNIVERSITY